

**October 1985**

# **Tropical Medicine**

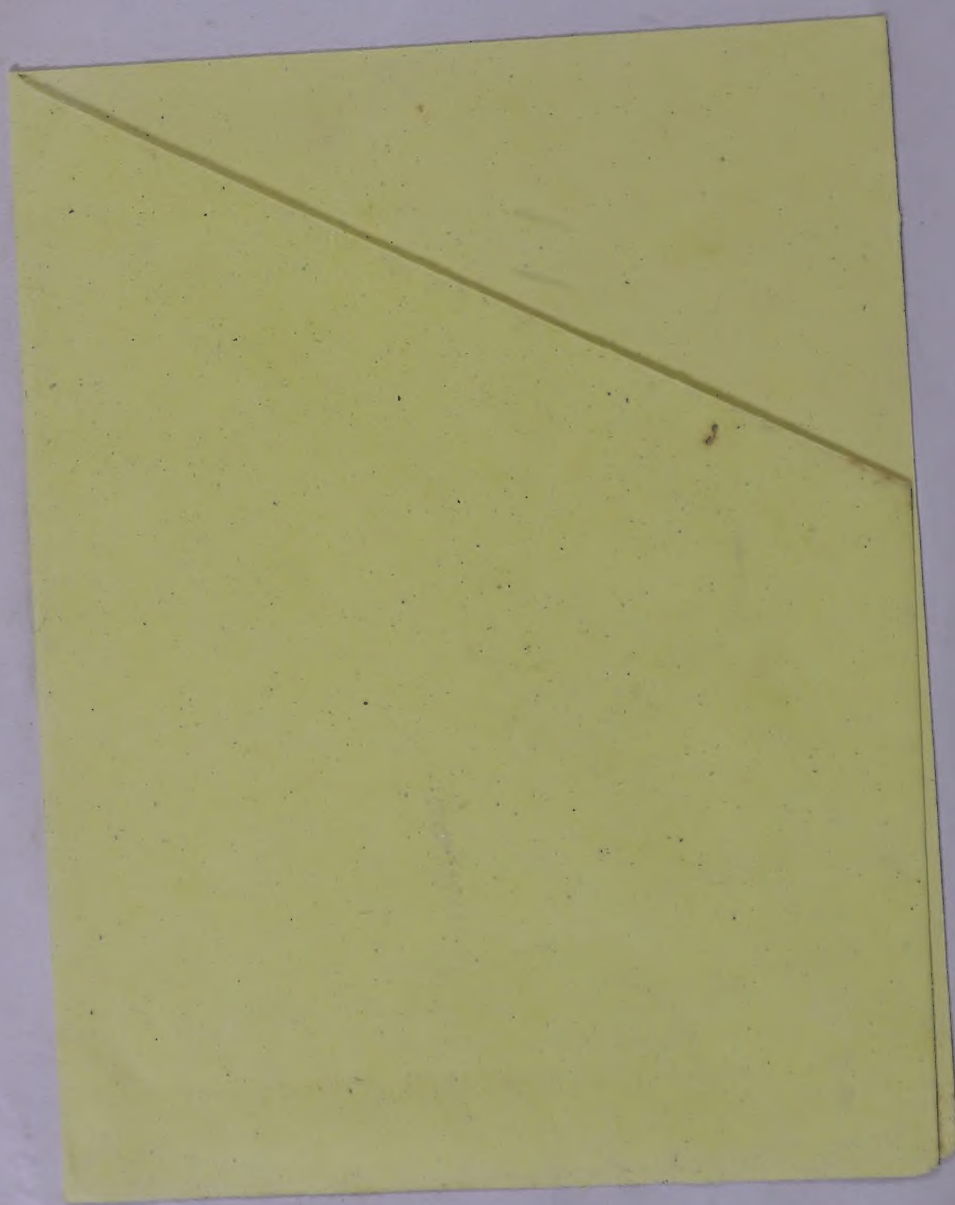
**A Current Awareness Bulletin**



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TROPICAL MEDICINE

OCTOBER 1985

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A Quarterly Current Awareness Bulletin for medical practitioners and research workers in Tropical Medicine.

This current awareness bulletin covers new developments, abstracts of periodical articles and books recently added to the library.

In this issue an annotated list of new titles on Tropical Medicine scheduled for publication during this year by the English Language Book Society (ELBS) is included.

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## NEWS

### ADVERSE DRUG REACTIONS AND THE LIVER

The liver is such an important organ for the metabolic transformation of drugs that it is surprising that hepatic adverse drug reactions represent only about 3% of the main reactions reported to the Committee on Safety of Medicine [CSM]. Nevertheless, 14% of those hepatic reactions are fatal, which is much higher than the 5% overall for drug reactions reported to the CSM. There is a rough correlation with age, the incidence of hepatic drug reactions being lowest in children and reaching a peak in the elderly. Jaundice is by far the commonest reaction: over 300 drugs have been associated with jaundice reported by the yellow card. Of these, halothane and chlorpromazine have generated the most reports. The main classes of drugs that produce liver reactions are: non-steroidal anti-inflammatory drugs; anti-depressants, both monoamine oxidase inhibitors and tricyclic antidepressants; antimicrobial agents; and sex hormones.

>BRITISH MEDICAL JOURNAL, 6 JULY 1985<

### TRYPANOSOMES AND THE DRUG INDUSTRY

There is no shortage of ideas for controlling the vectors of African and Latin American trypanosomiasis. What is lacking is the financial means for putting them into practice; the scale of the operation needed to eradicate the tsetse fly from more than just a few areas of Africa is daunting. As WE Gutteridge\* points out in a review in the latest issue of the British Medical Bulletin, the treatment of African trypanosomiasis has been at a standstill for many years now, despite the fact that the trypanosomicide atoxyl could be said to be the foundation of all chemotherapy. What is more, no drug, on either continent, is wholly satisfactory. In Africa physicians must rely on old drugs (pentamidine, Suramin, and melarsoprol) for chemoprophylaxis and treatment; against Chagas' disease the drugs are newer (nifurtimox and benznidazole) but neither is prophylactic. The label "orphan drug" is sometimes applied to compounds which do not receive the backing of the drug industry because the indications for their use are rare. Trypanosomiasis, one of the World Health Organisation's target infectious diseases, is common (an estimated 800 000 new cases of Chagas' disease alone each year). Yet Gutteridge notes that development difficulties of various sorts have hindered further work on some drugs. Sometimes the reason is purely commercial: Gutteridge puts the total market for a drug for use in man at the surprising figure of below £1 million per year.

\*Gutteridge, WE. Existing chemotherapy and its limitations - abstracted on page 11.

The main epithelial surfaces exposed to the environment are first, the mucosa of the respiratory tract; secondly, the gastrointestinal tract; and finally, the protective squamous epithelium of the skin, mouth and vagina. The surfaces of the respiratory and gastrointestinal tract are particularly vulnerable to viruses because living cells, designed to absorb oxygen, food and water, are permanently in direct contact with the environment.

The respiratory mucosa is the surface through which viruses must often enter or leave the body. The common cold, influenza and measles are caused by viruses which leave the body in invisible droplets, sprayed by the action of sneezing. The viruses are shed from the cells lining the respiratory tract in vast numbers for only a few days, but they are highly infectious to all non-immune people in close proximity. They attach to, and rapidly multiply within, lining cells of the respiratory tract. A few inhaled virus particles will regularly produce infection.

The cells lining the intestine can be directly infected by viruses such as poliomyelitis and hepatitis A. The viruses are shed in large numbers into the intestine for a week or two and they can survive in human sewage for days. Swallowing a few virus particles (virions), with food or water will usually result in infection. By contrast, the tough, protective, external surface of the epithelium of the skin, mouth and vagina offers an effective barrier against infection by viruses. Viruses cannot infect unless the surface layers are breached by animal bites or injury, which may be only of microscopic dimensions.

>NEW SCIENTIST, 20 JUNE, 1985<

## BREAKTHROUGH IN SEARCH FOR LEPROSY VACCINE

Researchers in the US have cloned five genes from the organism that causes leprosy. They could form the basis for better diagnosis and vaccines.

The cloning of the genes was a spectacular demonstration of the "sledgehammer" approach to molecular biology. The research teams chopped the genes of the leprosy bacteria into millions of bits, and cloned each one in a culture of E coli. They were able to pick the five genes they wanted out of 2.5 million clones.

The cultures containing the genes can now be used to produce large quantities of leprosy antigens. They will be needed. The World Health Organisation sees development of a leprosy vaccine as the best hope for the 15 million people who suffer from the disease in the Third World.

Resistance to the most common drug, dapsone, has spread to 25 countries.

What the peoples of the developing world need is a safe drug, active for a long time after a single oral dose against all species and at all disease stages. Nothing currently available approaches these requirements, and Gutteridge's final optimism is not easy to share.

>THE LANCET, 6 JULY 1985<

### SCHISTOSOMIASIS: A USEFUL NEW INSIGHT

A proper understanding of the natural history of a parasitic disease is essential to the planning of its efficient control, and in no infection is this more true than in the case of schistosomiasis. Schistosomiasis shares with most helminth infections the inability to replicate itself inside the host, and in this it differs fundamentally from all the infections caused by unicellular organisms such as bacteria. A patient with schistosomiasis will suffer harm in proportion to the number of parasites he or she harbours, and it is this "load-dependent" factor that largely accounts for the hugely different morbidity inflicted by the same parasite on different populations. Exposure to infection is often the critical variable.

In schistosomiasis control the emphasis has been shifting away from control of the snail intermediate host by molluscicides towards a direct attack on the parasite by chemotherapy. The reason for the shift is mainly the advent of new drugs with high efficacy and low toxicity. A study conducted revealed that these heavily infected individuals who are at high risk of progressive disease, leading eventually to portal hypertension and possibly death from rupture of oesophageal varices. The corollary is that these at-risk individuals should have priority in receiving chemotherapy. Mass chemotherapy will not, of course, stop transmission of schistosomiasis. Its advantage over unselective mass chemotherapy lies entirely in the savings it will achieve.

>THE LANCET, 13 JULY 1985<

### HOW VIRUSES JOURNEY FROM PERSON TO PERSON

Viruses can infect a person only by first entering cells, because they are entirely dependent upon the enzymes in living cells for their own reproduction. Viruses cause naturally occurring diseases in human beings only if they are able to pass successfully from person to person, or if they can be transferred from animals to people.

A virus can enter the body by infecting a cell on one of the epithelial, or lining surfaces. Alternatively it could pass through such surfaces, assisted by trauma or an insect bite. Some viruses can be transmitted congenitally. Viruses must escape from the body in similar ways if they are to infect others.

In parts of Mali nearly half the leprosy patients contract leprosy which is already resistant to dapsone before they themselves have even received the drug. The other anti-leprosy drugs are too expensive for the Third World.

The vaccine is produced from leprosy bacteria grown in armadillos, the only animal besides humans to get the disease. It would take millions of armadillos to provide enough vaccine for everyone who needs it. The clones were producing five antigens. It is not known whether any of these antigens, by themselves, will elicit enough immunity in humans to prevent leprosy, as a vaccine must. But they could help diagnosis, and speed up trials of the existing vaccine.

It is already known that in some places, the anti-TB vaccine BCG, gives some protection against leprosy. At Stanford University, Davis, one of the team who cloned the genes, hopes to engineer leprosy genes into BCG, making it really effective against both diseases. Genes from other viral and parasitic disease organisms could also be combined into a 'super-vaccine' this way, he says.

>NEW SCIENTIST, 8 AUGUST 1985<

#### MYSTERY AMOEBA STALKS WATER TAPS

Water scientists have been alarmed by the discovery of a new bug in British tapwater. An amoeba called *Giardia lamblia* has caused diarrhoea and stomach pains among an estimated 1000 people in South Bristol recently.

Local health officers believe that the protozoan amoeba entered water supplied from a reservoir run by the Bristol Waterworks Company during repairs to the mains pipes last month. The most likely source would be sewage, perhaps from a broken sewer, leaking into the soil.

No traces of the amoeba have been found in the water supply. But since the incubation period before symptoms appear in humans is up to four weeks it may have been washed from the system.

*Giardia lamblia* first emerged as a public health hazard in the US a decade ago. There it is widely found in wild animals such as beaver and moose. Standard water disinfection is not sufficient to kill the disease and the state government in Nevada has passed legislation requiring filtration of all water supplies.

In Britain, *Giardia* is found only rarely, mainly among people returning from holiday in parts of eastern and southern Europe.

>NEW SCIENTIST, 22 AUGUST 1985<

## FEAR OF WHOOPING COUGH EPIDEMIC

The 1977 whooping cough epidemic affected 100 000 children and 25 died in England and Wales; in 1981 there were 14 deaths. The Department of Health has said that an epidemic this year could put a million children at risk because by the end of 1984 only 65% of children born in 1982 had been immunised against whooping cough. So the government will launch a £500 000 publicity campaign in the autumn to encourage parents to have their children immunised. The campaign will provide information on contraindications and explain the risks associated with the disease and with immunisation.

>BRITISH MEDICAL JOURNAL, 31 AUGUST 1985<

### New president for Royal Society of Tropical Medicine

Professor Chevalier H M Giles from the Liverpool Society of Tropical Medicine has been elected President of the Royal Society of Tropical Medicine and Hygiene for the period 1985-7.

## IMMUNISATION OF CHILDREN

1984 immunisation rates for measles, rubella, and whooping-cough were slightly higher than the 1983 figures. The DHSS has asked health authorities to draw up programmes to increase the rates still further. For children born in 1982 and immunised by the end of 1984 estimated uptake rates are: measles 63% (60% in 1983); whooping-cough 65% (59% in 1983); and diphtheria, tetanus, and poliomyelitis 84% (no increase). For schoolgirls aged 14 the uptake rate for rubella immunisation rose from 84% in 1983 to an estimated 86%.

>THE LANCET, 31 AUGUST 1985<

## SICKLE-CELL ANAEMIA

Until recently sickle-cell disease was considered to be a rare tropical illness of little significance in Britain. In many regions doctors never encounter a single case of the disease, but each year in London up to 50 babies may be born with some form of the disorder. This disparity between regions has led to

confusion about the provision of care for sickle-cell disease. In 1984 the Runnymede Trust carried out a survey to identify services available within the National Health Service, with particular reference to screening facilities, counselling services, and training for doctors. All regional health authorities that responded stated that responsibility lies with individual districts and even hospitals; of the 76 districts with over 3% ethnic minorities only 6 were found to provide a comprehensive service. The major difficulty has been the impossibility of identifying the number of affected individuals, the type of sickling disorders, the long-term consequences, and the mortality from sickle-cell disease in Britain. Incidence and prevalence cannot be established without registers, and because health authorities have not issued any guidelines very few districts keep any statistics. Despite pressure from various quarters, systematic screening of newborn babies at risk of sickle-cell disease has not been introduced. Furthermore, there has been no attempt to mobilise resources and provide a service comparable with that for phenylketonuria, which occurs in 10-12 babies per 100 000 births, whereas sickle-cell disease is seen in about 500 babies per 100 000 births in the Afro-Caribbean community. At present there are 7 sickle-cell centres in inner London, Manchester, and Liverpool, which have been set up mainly in response to pressure from ethnic minority communities. None of these centres has succeeded in obtaining mainstream funding, and there are no formal training facilities for counsellors. The Trust recommends that funds are allocated centrally for the development of comprehensive care for sickle-cell disease and that firm guidelines are issued on the principles, aims, and structure of such care.

>THE LANCET, 31 AUGUST 1985<

## VACCINE COULD WIPE OUT RABIES

Rabies, which was out of control throughout most of the world and killed up to 100,000 people a year, could be eliminated by a newly-developed vaccine, it is claimed.

A vaccine pioneered in Switzerland and given to wild foxes in baited food had succeeded in protecting large areas of that country and was now being used with equal success in West Germany. Mr Tony Crowley, formerly government veterinary surgeon in charge of the rabies policy said.

He told the British Veterinary Association annual congress in Exeter, Devon, that the vaccine was now being used on an experimental basis in Italy, the United States and Canada. At present it was possible only to feed foxes, the main rabies carriers, with live vaccine.

"But if the technique can be made safe by using killed vaccine we will have in our hands a powerful and effective tool for the control and perhaps the elimination of wildlife rabies in the years to come," he said.

In the past 10 years rabies had continued its advance throughout the world and in the East was almost unchecked. Mr Crowley said that in 1984 there had been 29 cases of rabies in humans in Europe. "Britain has been free of the disease for 63 years except for two single outbreaks in 1969 and 1970 in imported dogs. There have been 15 cases of human rabies in the UK since 1945, all contracted abroad and mostly in India.

>THE TIMES, 13 SEPTEMBER, 1985<

## A check-list of vaccine hazards

THE Institute of Medicine report says that attempts to measure the risks associated with vaccines are complicated by the difficulty of relating cause and effect, by the circumstances that vaccine injury tends to be regarded seriously only after the incidence of damage from the uncontrolled infection has been substantially reduced and because of the lack of knowledge of the mechanism of vaccine injury. But immunodeficiency argues against the use of vaccines of any kind.

On the basis of experience in the United States, the report gives the following data. Pertussis. The frequency of fever ( $39^{\circ}\text{C}$  or more) is roughly 7 per cent within 24 hours of vaccination, apparently a consequence of the pertussis component of DTP (diphtheria-tetanus-pertussis) vaccine. The frequency of permanent injury, in the form of encephalopathy, is reckoned, from British data, to be one in about 150,000 in infants given three doses in the first year of life.

Diphtheria. While earlier preparations of the toxin produced temporary reactions, better purification has eliminated fatal or disabling reactions.

Tetanus. Anaphylactic reactions to tetanus

toxin are recognized at the rate of 1 per 1.5 to 2.0 million doses, but no fatalities are known.

Poliomyelitis. The risk of contracting paralytic polio from its oral vaccine is estimated at 1 in 11 million doses. But the committee says that consideration is now being given to switching back to inactivated polio vaccine.

Measles. Between 5 and 15 per cent of infants at 15 months develop a fever of  $39.4^{\circ}\text{C}$  a week after vaccination. Measles encephalitis, a complication of the natural infection, is estimated permanently to affect fewer than 1 in a million vaccinated children. The rate of slow-virus infection, leading to progressive fatal neurological disease, is too small to be estimated.

Rubella. Persistent arthritic conditions are recognized in a few vaccinated women.

Mumps. The report recognizes no permanent consequences of the use of mumps vaccine except that of allergic reaction to proteins from the eggs in which the virus is grown.

Influenza. The 500 cases of Guillain-Barré syndrome reported after the use of swine flu vaccine in 1976 are "unprecedented"; the cause remains unknown. ☐

>NATURE, 8 AUGUST 1985<

AN UPDATE ON VACCINES

CASE, FEG - Components of a cocktail [Malaria vaccine]

>NATURE, 18 JULY 1985, p212-213<

DOHERTY, PC - Progress on Theileria vaccine.

>NATURE, 8 AUGUST 1985, p484-485<

DRAPER, P - Leprosy bacillus outwitted.

>NATURE, 1 AUGUST 1985, p388-389<

THE HEPATITIS LESSON

>THE ECONOMIST, 27 JULY 1985, p74,76<

REDFERN, M - Missing protein strengthens hepatitis vaccine.

>NEW SCIENTIST, 1 AUGUST 1985, p20<

WILLIAMS, N - Malawi trial to be launched [Leprosy Vaccine]

>NATURE, 18 JULY 1985, p183<

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## PERIODICAL ARTICLES

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### 1. GENERAL

DYSON, E H et al

Death and blindness due to overdose of quinine

British Medical Journal, 6 July 1985. p31-33

During 1953-83 there were 48 admissions to the regional poisoning treatment centre, Edinburgh, for overdose of quinine including 19 since 1978. Six patients were blind and one had ventricular tachycardia. Stellate ganglion block was performed without benefit in seven patients. No patient died, but three deaths from cardiotoxicity occurred in a further 71 patients reported to the Scottish Poisons Information Bureau. Plasma quinine concentration related to time from ingestion was found to be a useful predictor of visual toxicity.

ELDER, G H et al

Immunoreactive uroporphyrinogen decarboxylase in the liver in porphyria cutanea tarda

The Lancet, 3 August 1985. p229-232

Immunoreactive and catalytic uroporphyrinogen decarboxylase were measured in liver from 15 patients with sporadic porphyria cutanea tarda (PCT) and 4 patients with familial PCT at different stages of the disorder. In sporadic PCT, catalytic activity was lowest and immunoreactive enzyme concentration was highest when active skin lesions were present; this pattern was also seen in the one familial PCT patient who had skin lesions. During remission, the ratio of catalytic activity to immunoreactive enzyme concentration returned towards normal. Immunoreactive enzyme was increased by comparison with controls in sporadic patients with skin lesions; in familial PCT mean concentration was 59% of the overall sporadic value. In 4 sporadic patients in prolonged (4-8 years) remission (following venesection) enzyme activity and immunoreactive enzyme concentrations were normal. It is suggested that clinically overt PCT is precipitated by an iron-dependent process which inactivates the active centres of uroporphyrinogen decarboxylase molecules in the liver. Treatment by venesection eventually leads to complete reversal of this biochemical defect in at least some patients with sporadic PCT. The findings are consistent with the view that sporadic PCT is an acquired disorder.

JONES, BJM et al

Coexistent ulcerative colitis and Crohn's disease

Postgraduate Medical Journal (1985), Vol.61(717), p647-649

This case report describes a patient with chronic ulcerative colitis and epithelial dysplasia of 17y duration ultimately complicated by colonic carcinoma. At laparotomy, clinically unsuspected but typical Crohn's disease of the terminal ileum was also found. The macroscopic and histological features of the resected terminal ileum were characteristic of Crohn's disease.

ROSS, EM

Immunisation against diphtheria, tetanus, pertussis and polio

The Practitioner (1985), Vol.229(9), p795-799

The conventional diphtheria, tetanus, pertussis and polio vaccines offered to pre-school children in Britain are reviewed and some new developments and important differences between British and foreign experience are discussed. Another epidemic of pertussis can be expected to start in late 1985.

THEIN, SL et al

Feasibility of prenatal diagnosis of  $\beta$ -thalassaemia with synthetic DNA probes in two mediterranean populations

The Lancet, 17 August 1985, p345-347

A feasibility study in two Mediterranean populations showed that prenatal diagnosis of  $\beta$ -thalassaemia with a limited number of synthetic oligonucleotide probes would have been possible in about 70% of cases. To provide a comprehensive programme of prenatal diagnosis for the thalassaemias it would be necessary, in most populations, to combine fetal DNA analysis with fetal blood sampling and globin-chain synthesis studies.

## 2 DISEASES CAUSED BY PROTOZOA

### 2.1 MALARIA

SACHDEV, HS & MAN MOHAN

Vivax Cerebral Malaria

Journal of Tropical Pediatrics (1985), Vol.31(4). p213-215

The clinico-laboratory profile of six patients with vivax cerebral malaria was studied. Presenting features were of an acute febrile encephalopathy, convulsions and coma. Focal neurological signs were observed in one patient. Associated renal failure, circulating immune complexes and low serum C<sub>3</sub> complement levels were detected

in 2 cases. Serum albumin levels were low in 4 cases. Four children expired, the survivors had no residual sequelae. Hypoalbuminemia, renal failure and deep coma were poor prognostic indicators. The possible pathogenetic mechanisms are discussed.

## 2.2 TRYPANOSOMIASIS

BRITTEN, V & HUDSON, L

Isolation and characterisation of human T-cell lines from a patient with Chagas' disease

The Lancet, 21 September 1985. p637-639

Short-term T-cell lines reactive to different *Trypanosoma cruzi* antigens were isolated from a patient with Chagas' disease. These T-cell lines were analysed phenotypically with monoclonal antibodies defining pan-T (T11), helper (T4), or cytotoxic/suppressor epitopes by the use of a continuous-flow microfluorimeter. One cell line, 5C3, was obtained from T-cell blasts reactive to formaldehyde-fixed amastigotes (the intracellular stage of the parasite) plated at limiting dilution (3.3 cells/well). This line was shown to be T11 and T4 positive, to respond to specific antigen in an HLA-DR restricted manner, and to produce interleukin-2 under similar growth conditions.

GIBSON, WC & MILES, MA

Application of new technologies to epidemiology

British Medical Bulletin (1985), Vol. 41(2), p115-121

Three different technologies are currently being used to unravel the epidemiology of African and South American trypanosomiasis: these are the use of isoenzymes as genetic markers, direct analysis of DNA and the production of highly specific monoclonal antibodies.

GUTTERIDGE, WE

Existing chemotherapy and its limitations

British Medical Bulletin (1985), Vol. 41(2), p162-168

Chemotherapy of African trypanosomiasis currently centres on three key drugs: pentamidine for chemoprophylaxis; suramin for treatment of the early stages of the disease; and melarsaprol for treatment of late stages when trypanosomes are present in the CNS. No drug is in routine use to prevent transmission during blood transfusion. In contrast, there are no drugs registered for chemoprophylactic use in Chagas' disease, though two, nifurtimox and

benzindazole, are marketed in some countries in Latin America for treatment of both acute and chronic cases. Gentian violet is, however, available to prevent transmission during blood transfusion. Limitations of efficacy and/or problems of toxicity impose severe limitations on the usefulness of all of those drugs.

HUDSON, L & BRITTEN, V

Immune response to south American trypanosomiasis  
and its relationship to Chagas' disease

British Medical Bulletin (1985), Vol.41(2), p175-180

*T. cruzi* infection and Chagas' disease is a major public health problem in Latin America. The disease shows three distinct phases of development, acute, indeterminate and chronic, with great geographical diversity in its severity and prevalence. The initial events of infection produce direct tissue damage due to host cell invasion but can eventually progress to a pathogenesis which seems no longer to require the parasite. The host's own anti-parasite immune response has been implicated in the pathology seen during late acute-and chronic-phase disease. Parasite antigens have the potential to modify the surface of both infected and uninfected host cells, thus exposing them to the host's own anti-parasite immune response in late acute phase. Autoimmunity develop during the chronic phase and could act to sustain the parasite-initiated pathogenesis. These observations have obvious implications for immunoprophylaxis-an effective vaccine must prevent or cure infection, but must not produce autoimmunization.

JORDAN, AM

The vectors of African trypanosomiasis: research towards  
non-insecticidal methods of control

British Medical Bulletin (1985), Vol.41(2), p181-186

The development of systems for colonizing *Glossina* spp. and for feeding them through artificial membranes has been the basis for an expansion of research on the insects themselves and on fly-transmitted strains of *Trypanosoma* spp. Much of the entomological research has been towards the development of methods of control which avoid the spraying of insecticides, the only effective present approach to control. The sterile insect release method has been evaluated in Tanzania and Upper Volta. A specific contact sex-recognition pheromone is a component of the cuticle of *Glossina* and field studies have been initiated to determine whether this specificity can be exploited for control purposes. A variety of compounds can interfere with reproduction of laboratory populations of *Glossina*, but there are difficulties in exploiting these findings in the field. The use of traps and targets impregnated with insecticide offer the most immediate promise of a new approach to tsetse control.

SCHOFIELD, C J

Control of Chagas' disease vectors

British Medical Bulletin (1985), Vol. 41(2), p187-194

Chagas' disease transmission can be interrupted by control of domestic triatomine vectors. In the short term, control will continue to rely on spraying infested houses with residual insecticides although, as longer-term development objectives are reached, house improvement will become more important. There is no real technical barrier to Chagas' disease vector control, but problems remain in terms of optimizing the cost effectiveness of strategies for each endemic situation.

SNARY, D

Biochemistry of surface antigens of  
Trypanosoma Cruzi

British Medical Bulletin (1985), Vol.41(2), p144-148

A number of cell-surface antigens have been identified and isolated from Trypanosoma cruzi, all of which are glycoconjugates. These include a 90000 mol. wt. glycoprotein capable of inducing protective immunity in mice which is found on all stages of the parasite life cycle; a 72000 mol. wt. glycoprotein found on insect stages of the life cycle which has been implicated in the control of differentiation; and a complex glycolipid (lipopeptidophosphoglycan) containing lipid, carbohydrate, phosphate and amino acids whose function is unknown. The structure and possible function of these and other glycoproteins from T. cruzi which have been less extensively studied is reviewed and possibly unusual biosynthetic pathways for glycosylation highlighted.

TURNER, M J

The biochemistry of the surface antigens of the  
African Trypanosomes

British Medical Bulletin (1985), Vol.41(2), p137-143

The African trypanosomes owe their ability to survive within the bloodstream of their mammalian hosts to their ability to undergo antigenic variation. The continuous development of antigenically distinct variants in the course of infection ensures that some trypanosomes always survive the development of an immune response to propagate the infection. Antigenic variation is a consequence of changes in the composition of the surface coat which covers the entire surface of the trypanosome. The surface coat on any one trypanosome is composed of a matrix of about  $10^7$  identical glycoprotein molecules, which show remarkable sequence diversity when different variants are compared. The biochemistry of these unusual glycoproteins is reviewed.

VICKERMAN, K

Developmental cycles and biology of pathogenic  
Trypanosomes

British Medical Bulletin (1985), Vol.41(2), p105-114

The gross form changes undergone by trypanosomes when changing their environment are accompanied by adaptive activation and repression of metabolic pathways and correlated ultrastructural changes. In the life cycle of sleeping sickness trypanosomes (*Trypanosoma brucei*), the most prominent changes occur in the mitochondrial system in relation to switches in the pathways of energy metabolism, and in the trypanosome surface in relation to evasion of the mammalian host's immune response through antigenic variation. The agent of South American trypanosomiasis (*T. cruzi*), exhibits neither a marked mitochondrial cycle nor antigenic variation, but changes in its surface components in relation to invasion of host cells and resistance to host defence mechanisms have been demonstrated. The study of trypanosome survival mechanisms may suggest ways of halting the development cycle and hence the progress of the disease.

### 2.3 LEISHMANIASIS

KILLICK-KENDRICK, R et al

Zoonotic cutaneous leishmaniasis in Saudi Arabia:  
lesions healing naturally in man followed by a second  
infection with the same zymodeme of *Leishmania major*

Transactions of the Royal Society of Tropical Medicine and  
Hygiene (1985), Vol.79(3), p363-365

A patient with a previous history of an infection with *Leishmania b. braziliensis* contracted zoonotic cutaneous leishmaniasis (ZCL) in the Al-Hassa oasis, Eastern Province, Saudi Arabia. Five lesions healed spontaneously over a period of 40 weeks without treatment. A year after acquiring ZCL he became infected again in the same focus. Isolates of parasites at both episodes were identified as *L. major*, zymodeme LON-4. Compared with the first infection of ZCL, parasites were fewer in the lesions on the second occasion, the lesions were smaller and healing was quicker (10 weeks). This work and previous report of patients with active lesions and leishmanial scars suggest that second infections of *L. major* are not uncommon in the oasis where no autochthonous infections of other species of *Leishmania* have yet been recorded in man and only one species of *Phlebotomus* (*P. papatasi*) is known.

## 2.4 TOXOPLASMA AND TRICHONOMIASIS

BALFOUR, A & HARFORD, JP

Detection of specific IgG and IgM antibodies to *Toxoplasma gondii* with a commercially available enzyme immunoassay kit system

Journal of Clinical Pathology (1985), Vol.38(6), p679-689

A total of 138 serum samples submitted for toxoplasma serology have been examined by enzyme immunoassay using kits produced by Labsystems Oy for the detection of specific antibodies of the IgG and IgM class. Results were compared with the dye test, an indirect haemagglutination test, and an indirect immunofluorescence test for specific IgM. The enzyme immunoassay was less sensitive than the dye test, but by running both IgG and IgM enzyme immunoassays, 92.4% sensitivity was achieved. The specificity of the enzyme immunoassay was good, with only one dye test negative serum giving a positive (but weak) IgG enzyme immunoassay reaction. Thirty serum samples from patients with no evidence of exposure to *Toxoplasma gondii* gave negative results in the IgM enzyme immunoassay. Enzyme immunoassay results were expressed in enzyme immunoassay units, as a percentage value of a standard serum. This convention will be of value in the direct comparison of assay systems and in the application of quality control procedures.

NORTH, M J

Taming trichomoniasis

Spectrum (1985), No.191, p5-7

Trichomoniasis, caused by a parasite, has so far been somewhat neglected, though it afflicts many millions of people. Transmitted sexually, it is in many parts of the world more prevalent than any other infection carried that way. Research is now going on to unravel the metabolism involved and develop alternatives to present treatment, with the aim of curbing the disease and eventually eradicating it.

## 2.5 AMOEBIASIS

GILL, NJ et al

Histopathology of hepatic amoebiasis in guinea-pigs infected through intracaecal and intramesenteric routes

Transactions of the Royal Society of Tropical Medicine and Hygiene (1985), Vol.79(3), p339-343

The comparative histopathological details of amoebic liver abscess were studied following intracaecal and intramesenteric inoculation

of *Entamoeba histolytica* into guinea-pigs. The histological changes of amoebic liver abscess formed via the former route were similar to those seen in man. These consisted of a central necrotic area with few lymphomononuclear cells and *E. histolytica* trophozoites at the periphery of the lesion. The amoebic liver abscess formed via the intramesenteric route, however, differed from that formed by intracaecal inoculation in three ways: [i] in having an intense inflammatory reaction, [ii] healing of the abscess by fibrosis and [iii] exhibiting a giant cell reaction.

### 3 DISEASES CAUSED BY HELMINTHS

#### 3.1 NEMATODE INFECTIONS

HILL, IR et al

*Toxocara canis* larvae in the brain of a British child

Transactions of the Royal Society of Tropical Medicine and Hygiene (1985), Vol.79(3), p351-354

The clinical and autopsy findings of a two and a half year-old infant with *Toxocara* sp. infection of the brain and granulomatous lesions in the liver are reported. The cause of death was non-accidental injury. The relationship between *Toxocara* infection and behavioural disorders is discussed.

SHELLEY, AJ & ARZUBE, M

Studies on the biology of Simuliidae (Diptera) at the Santiago onchocerciasis focus in Ecuador, with special reference to the vectors and disease transmission

Transactions of the Royal Society of Tropical Medicine and Hygiene (1985), Vol.79(3), p328-338

A survey showed the presence of seven simuliid species in the onchocerciasis focus in Ecuador. *Simulium exiguum* and *S. quadrivittatum* were the two most common anthropophilic species and were shown to be both experimental and natural vectors of *Onchocerca volvulus*. *S. antillarum* only occasionally bit man. Observations were made on the biology of the two vector species and it was evident that *S. exiguum* was the primary vector of onchocerciasis in the rainy season. The relevance of these findings to the epidemiology and control of onchocerciasis in Ecuador are discussed.

### 3.2 TREMATODE INFECTIONS

BUTTERWORTH, AE et al

Immunity after treatment of human schistosomiasis mansoni.  
II. Identification of resistant individuals, and analysis  
of their immune responses

Transactions of the Royal Society of Tropical Medicine and  
Hygiene (1985), Vol.79(3), p393-408

Intensities of re-infection were monitored at three-monthly intervals after treatment of *Schistosoma mansoni* infections in a group of 119 Kenyan schoolchildren, whose levels of water contact were also observed. 22 children showed high reinfection intensities ( $>100$  eggs per gram of faeces) by 12 months after treatment, and were considered to be susceptible. Out of 70 children who showed low reinfection intensities during the same period ( $<30$  eggs per gram), 35 showed high levels both of total water contact and of contact with sites containing infected snails. In these children, the relative lack of reinfection could not be attributed to a lack of exposure, and they were classified as resistant to reinfection. Comparison of the two groups, resistant and susceptible, revealed no difference in pretreatment intensities of infection. However, there was a marked difference in age, the mean age of the resistant group being two years greater than that of the susceptible group, within a restricted starting age range. These findings indicated that resistance was an acquired and age-dependent phenomenon, not obviously related to previous egg-induced pathology.

MOTT, KE

A lesson about water: schistosomiasis

Waterlines (1985), Vol.4(1), p15-17

Schistosomiasis or bilharziasis has been considered an inevitable plague in 74 developing countries up to now. It is usually referred to as 'that disease caused by snails'. Upon closer examination, however, it is not the snails which cause schistosomiasis, it is people themselves. Widespread acceptance of this fact now forms the basis of the new concept of control of schistosomiasis.

Isotope renography and urinary schistosomiasis: a study  
in a Gambian community

Transactions of the Royal Society of Tropical Medicine and  
Hygiene (1985), Vol.79(3), p306-313

A transportable apparatus for isotope renography, which allowed deconvolution analysis, was used to study the prevalence and prognosis of abnormalities associated with urinary schistosomiasis. Before carrying out studies in a heavily infected community, observations were made in a non-endemic area to allow derivation of criteria for abnormality. Comparison of the findings in the two areas showed that changes suggesting urinary tract obstruction were more common in the endemic area in subjects between 9 and 45 years but not in older subjects. Measurements of effective renal plasma flow showed renal function was impaired in the endemic area in subjects older than 17 years but not in younger subjects. In the endemic area the results of renography were unrelated to the urinary egg count of the subjects examined, but there was an improvement in the abnormal renograms in a group of subjects aged between 9 and 20 years who were re-examined a year after treatment with metrifonate. Follow-up data about 316 subjects was obtained two years after renography. Nine subjects had died, including four of the five subjects with abnormalities suggesting both obstruction and over-all loss of renal function. These findings, which are comparable to the results of similar studies using radiological techniques, suggest urinary schistosomiasis may be a significant cause of mortality in adults in intensely infected communities.

### 3.3 CESTODE INFECTIONS

VELIATH, AJ et al

Cysticercosis in South India

Journal of Tropical Medicine and Hygiene (1985), Vol.88(1), p25-29

A total of 38 cases of human cysticercosis were diagnosed by histopathological examination within a period of 10 years in JIPMER Hospital which serves the population of Pondicherry and adjoining regions of South India. Analysis of our cases showed that there was no sex predilection and 34 of the 38 cases were within the first three decades of life. A curious yet striking feature was that in 37 of the 38 cases the lesions were localized above the level of the umbilicus. Lesions of the subcutaneous tissue formed the largest group with 18 cases. Seventeen of the 38 cases were confined to the eyes, forming the largest series to be reported from India. In six cases there was evidence of brain involvement with postmortem confirmation in three. The JIPMER hospital records showed a high

incidence of epilepsy in this region with a ratio of one out of every four patients attending the neurology clinic. As cerebral cysticercosis is a known cause of epileptiform convulsions, it is suggested that many cases of epilepsy may in fact be due to cerebral cysticercosis. The majority of our patients were drawn from the rural population. We analysed the social customs and related factors which are peculiar to this region and were indirectly responsible for the high incidence of cysticercosis.

#### 4. DISEASES CAUSED BY VIRUSES

##### 4.1 GENERAL

REED, S E et al

United Kingdom scheme for external quality assessment in virology. Part I. General method of operation.

Journal of Clinical Pathology (1985), Vol.38(5), p534-541

Developments in the United Kingdom national external quality assessment scheme for virology are described. There are about 198 participants (170 in the UK) who are enrolled for examination of any or all of five categories of specimen (distribution types). These are detection of rubella antibody (128 UK participants), detection of hepatitis B surface antigen (130 UK participants), general virus serology (86 UK participants), virus identification (85 UK participants), and electron microscopy (56 UK participants). Specimens of a sixth category (rubella IgM antibody), not yet formally established, have also been distributed to 67 UK participants. Specimens in each distribution type are sent out once or twice a year, and, except for rubella IgM antibody, participants have been given a score of 2, 1, 0 or -1 marks for their reports on each specimen. Their cumulative scores and performance ratings are calculated retrospectively over a 12 month period for each distribution type separately and for combined distributions. The performance rating is defined by the number of standard errors by which the individual's cumulative score differs from the mean for all participants and carries a + or - sign depending on whether the cumulative score lies above or below the mean. Performance ratings have been found generally to be close to the mean in rubella serology and detection of hepatitis B surface antigen but are more variable in virus identification and electron microscopy. Ratings of  $<-1.96$  are considered to be significantly worse than average and to constitute poor performance.

United Kingdom scheme for external quality assessment in virology. Part II. Specimen distribution, performance assessment, and analyses of participants' methods in detection of rubella antibody, hepatitis B markers, general virus serology, virus identification, and electron microscopy.

Journal of Clinical Pathology (1985), Vol.38(5), p542-553

In testing for rubella antibody or hepatitis B surface antigen (HBsAg) the scores given for reports of positive, equivocal, or negative depend on the specimen's content of antibody or HBsAg as established in the external quality assessment laboratory. For general virus serology two serum samples must be tested against a designated antigen by the complement fixation method; the score allocated for each participant's results depend on the ratio of the two titres he records, which is then compared with a target value derived from the results of a panel of participating laboratories. In virus identification and electron microscopy specimens are prepared from cultures or from clinical samples, and scores depend on the accuracy of identification. The pre-distribution tests necessary to establish the virus content and stability of these specimens have been defined, and media suitable for transporting specimens for virus culture, fluorescent antibody staining, or electron microscopy have been developed. A participant's overall success rate for each specimen is judged from the mean score (maximum 2) calculated from the scores of all participants examining the specimen. Mean scores were highest for detection of rubella antibody or HBsAg (from 1.67 to 1.96) and lowest for specimens containing certain small enteric viruses distributed for electron microscopy (0.82 to 1.12). Participants' reports on the methods used for each specimen have been analysed. Current changes and developments in methods have been recorded, and attempts have been made to relate the use of various techniques and test kits to successes or failures with various types of specimen.

#### 4.2 HEPATITIS

BRAMWELL, S P et al

Dinitrochlorobenzene skin testing predicts response to Hepatitis B vaccine in dialysis patients

The Lancet, 22 June 1985. p1412-1415

The pattern of seroconversion and anti-HBs titres after 3 doses of hepatitis B vaccine was studied in 40 haemodialysis patients who had been grouped on the basis of their cell-mediated immune (CMI) response into strong or weak reactors. CMI response was determined by means of a dinitrochlorobenzene (DNCB) skin test. Titres of anti-HBs were comparable to those in healthy controls in 13 of 14 (93%) strong reactors but in only 9 of 26 (35%) weak

reactors. Strong reactors had an equally satisfactory sero-conversion rate with either 20 µg or 40 µg of vaccine whereas weak reactors had a negligible seroconversion rate with the 20 µg dose. In terms of hepatitis B prophylaxis, haemodialysis patients with a well preserved CMI response require only 20 µg of vaccine, with a consequent saving in cost. In contrast, it will be necessary to devise more effective immunisation schedules for most patients with a poor CMI response.

DICK, M C & MOWAT, A P

Hepatitis syndrome in infancy-an epidemiological survey with 10 year follow up

Archives of Disease in Childhood (1985), Vol. 60(6), p512-516

Fifty four infants with hepatobiliary disease and conjugated hyperbilirubinaemia of more than two weeks' duration were identified in a defined area of south east England in a prospective study between January 1971 and December 1973. The overall incidence was one case per 2500 live births. The cases were regularly reviewed and all survivors except one were assessed at age 10 years.

Nine of 11 with extrahepatic biliary atresia died from liver disease by 2 years of age, one died at 5 years, and the survivor has cirrhosis with portal hypertension. Four out of seven with  $\alpha_1$  antitrypsin deficiency died aged 1 to 3 years from liver disease and one of the survivors has cirrhosis. All three infants with intrauterine infection and one with chromosomal abnormality died in infancy. Three children with other associated factors, choledochal cyst, galactosaemia, and rhesus isoimmunisation, recovered completely with no persisting liver disease. Two of 29 with cryptogenic hepatitis died, but only a further two have signs of persisting liver disease. Perinatal complications were more common in this group. Four of the 27 children surviving to the age of 10 years are educationally subnormal. Prognosis for infants with intrahepatic liver disease in the absence of known associated factors is good and every effort should be made to minimise the short term effects of cholestasis.

KARAYIANNIS, P et al

Hepatitis B virus DNA in saliva, urine, and seminal fluid of carriers of hepatitis B e antigen

British Medical Journal, 22 June 1985. p1853-1855

Concentrated samples of saliva, urine, and seminal fluid from 23 men with chronic liver disease who were positive for hepatitis B e antigen were examined for the presence of hepatitis B virus deoxy-ribonucleic acid (HBV-DNA) by molecular hybridisation. HBV-DNA was detected in saliva from 15 of 17 men (88%), urine from 12 of

of 22 men (55%), and seminal fluid from 13 of 21 men (62%). The presence of hepatitis B virus in such secretions has important epidemiological implications for heterosexual and homosexual contact.

LOK, A S F et al

Clinical and histological features of delta infection in chronic hepatitis B virus carriers

Journal of Clinical Pathology (1985), Vol.38(5), p530-533

One hundred and six consecutive chronic hepatitis B virus (HBV) carriers were studied for the prevalence of delta markers in serum and tissue, and the clinical and histological features of those with and without delta infection were compared. Twenty (18.9%) patients were positive for anti-delta in serum or delta antigen in the liver or both. They presented at a younger age (30.3 v 38 years). All of them were symptomatic at the time of biopsy, in contrast to 35% of patients without delta infection who were not symptomatic. Those with delta infection had higher serum transaminase values and showed more severe liver damage on biopsy: chronic active hepatitis in 45% and cirrhosis in 55%. There was more pronounced disease activity both within the parenchyma and in the portal and periportal zones. The histological diagnosis of the 86 patients without delta infection included minimal disease (10%), chronic persistent hepatitis (9%), chronic active hepatitis (62%), and cirrhosis (19%). Delta infection in chronic HBV carriers is associated with a more active and progressive liver disease.

READ, R B et al

Myocarditis and fulminant hepatic failure from coxsackievirus B infection

Postgraduate Medical Journal (1985), Vol.61(718), p749-752

A case of fulminant hepatic failure in association with myocarditis is reported. Presentation suggested an acute hepatitis which was complicated by cardiac failure. Evidence of severe myocarditis was found at autopsy.

STELLON, A et al

Microcrystalline hydroxyapatite compound in prevention of bone loss in corticosteroid-treated patients with chronic active hepatitis

Postgraduate Medicine Journal (1985), Vol.61(719), p791-796

To determine whether microcrystalline hydroxyapatite compound (MCHC) could reduce bone loss or its consequences in patients with

chronic active hepatitis (CAH) on corticosteroid therapy, a controlled trial was conducted in 36 such patients over a period of 2 years. Both skeletal symptoms (back pain) and fractures were uncommon during the trial period but both showed non-significant differences in favour of the MCHC group and biochemical investigations were suggestive of a reduction in parathyroid over-activity. Continued reduction in bone mineral content of the radius (photon absorptiometry) was halted in those receiving MCHC and iliac crest bone biopsy showed a non-significant increase in trabecular bone volume. The fall in iliac crest cortical plate thickness was significantly less ( $P < 0.025$ ) in the MCHC group and the results overall were consistent with a beneficial effect from MCHC in corticosteroid-induced osteoporosis.

VERGANI, D et al

Genetically determined low C4: A predisposing factor to autoimmune chronic active hepatitis

The Lancet, 10 August 1985. p294-297

Of 26 patients with autoimmune chronic active hepatitis (CAH) starting in childhood 18 (69%) had low C4 and 5 (19%) had low C3 serum levels. Impaired hepatic synthesis and immune-consumption were unlikely since transferrin levels were normal in all patients, albumin levels were persistently low in only 3, and only 3 had raised levels of activation fragment C3d. C4d was normal in all patients studied. In the families of 12 probands with low C4, 7 parents had low C4 and 2 had levels which were at the lower limit of normal. 5 of 10 siblings from 5 families had low C4. These results suggest that low C4 levels in CAH are genetically determined. C4 phenotyping in 20 patients and in 26 parents showed that 90% and 81%, respectively, had null allotypes at either the C4A or C4B locus compared with 59% in controls, indicating that defective expression of structural genes may contribute to the observed C4 deficiency.

#### 4.3 POLIOMYELITIS

CROSS, A B & WEBBER, R H

A poliomyelitis survey the simple way:  
the Tanzanian experience

British Medical Journal, 24 August 1985. p532

A simple cost effective survey to assess the need for a rehabilitation service for individuals disabled by poliomyelitis was carried out making the maximum use of the existing government administration. The field team consisted solely of a medical officer and a health officer. The prevalence rate for paralytic poliomyelitis in the

Mbeya region of Tanzania was 2.95/1000 persons. The rate for children under 10 years was 1.15/1000, suggesting that the expanded immunisation programme started in 1977 was being successful. With approximately 4000 cases of paralytic poliomyelitis in the Mbeya region a rehabilitation service would seem to be justified. If poliomyelitis surveys are required for rehabilitation purposes they must include all age groups. In this survey, had only school children been considered, as recommended by the World Health Organisation, two thirds of the cases would have been excluded, thereby hardly justifying a rehabilitation service.

WYATT, H V

Provocation of poliomyelitis by multiple injections

Transactions of the Royal Society of Tropical Medicine and Hygiene (1985), Vol.79(3), p355-358

Injections of vaccines provoked paralytic poliomyelitis in children in the UK and elsewhere. The effect of multiple injections has not been recognized previously but could be important in the tropics where children receive many injections. A number of epidemics of poliomyelitis between 1914 and 1962 are related to children with congenital syphilis or yaws under treatment with arsenicals or penicillin. Rates of 25% of children with paralysis occurred in epidemics while in non-epidemic periods the increase in susceptibility was about 25 fold. Other possible cases of provocation are discussed. Although in the tropics injections before paralysis may be causal, it will be difficult to prove that they are not coincident. The very high rate of paralysis following multiple injections is powerful evidence that injections in the tropics are often causal.

#### 4.4 OTHER VIRUS DISEASES

DIXON, B

Doubts that reach out from the grave

New Scientist, 25 July 1985. p58-59

Isolation of smallpoxvirus from bodies in the crypt of Christchurch in Spitalfields, London, renewed fears that the virus might persist. Ten years ago the idea was scorned.

SMITHELLS, R W et al

National Congenital Rubella Surveillance Programme  
1 July 1971-30 June 1984

British Medical Journal, 6 July, 1985. p40-41

The fourth of a series of reports on surveillance of Congenital Rubella by the National Congenital Rubella Surveillance Programme. Clinical data on 763 children is presented in a table confirmed a suspected congenital rubella. The children were reported between 1 July 1971 and 30 June 1984, the period during which large and moderate rubella epidemic years were interspersed among non-epidemic years. It also envisages the impact of the rubella vaccination programme.

WATSON, K C et al

Distribution of biotypes of Haemophilus influenzae and H parainfluenzae in patients with cystic fibrosis

Journal of Clinical Pathology (1985), Vol.38(7), p750-753

One hundred and eighty eight isolates of Haemophilus influenzae and 187 isolates of H parainfluenzae from patients with cystic fibrosis, patients with respiratory infections but without cystic fibrosis, and patients with neither cystic fibrosis nor respiratory infections were biotyped. Biotype I of H influenzae were found significantly more often in patients with cystic fibrosis compared with those with normal respiratory tracts. On the other hand, biotype II strains of H influenzae were found less often in the cystic fibrosis group. Half of the biotype V strains produced  $\beta$ -lactamase.

## 5 DISEASES CAUSED BY BACTERIA

### 5.1 LEPROSY

MOOREHEAD, C

The outcast of disease

New Society, 26 July 1985

Leprosy is still perceived with horror: the word "leper" carries an almost moral taint. Yet the means to eradicate it are to hand, if we had the will.

## 5.2 DIARRHOEA

CHALLACOMBE, D N

Assessment and management of chronic diarrhoea in childhood

Prescriber's Journal (1985), Vol.25(3), p56-81

Chronic diarrhoea is diagnosed when a child passes several loose stools a day for 2 or more weeks. Acute diarrhoea in childhood usually remits within a few days with appropriate treatment. Many gastrointestinal disorders in childhood may present with chronic diarrhoea but only the more common of these will be considered in this article.

HOWARD, F M et al

Diarrhoea: After rehydration, what next?

Human Nutrition: Applied Nutrition (1985), Vol.39A(1), p53-61

Successful management of diarrhoea depends firstly on restoring fluid and electrolyte balance. Following this, the child needs to be fed, to prevent malnutrition and morbidity. Conventionally, this is achieved by regrading onto the previous feed.

In our series of 42 infants with mild gastroenteritis, six out of 12 infants had persistent diarrhoea after one week on normal infant formula. Twenty-five out of 27 infants who were given a low-lactose formula (HN25) had normal stools within 4 days. ( $\chi^2=18.487$ ;  $P<0.001$ ). Only two out of 27 infants had a recurrence of loose stools at 1 week and these became normal after regrading back on to HN25. Recovery time was shortened, while nutritional status was maintained. Short-term substitution of a low-lactose formula after rehydration speeds recovery from gastroenteritis.

KALANI, B P & BHARGAV, R K

Post-Diarrhoeal Necrotizing Enterocolitis in older infants

Journal of Tropical Pediatrics (1985), Vol.31(4), p197-199

Eighteen infants suffering from severe diarrhoea and dehydration developed post-diarrhoeal ileus which on close follow-up proved to be necrotizing enterocolitis. Post-diarrhoeal ileus is a serious condition and infants developing it should be carefully observed as prospective candidates for neonatal necrotizing enterocolitis (NEC)

and treated accordingly. When indicated surgery should be promptly done to reduce morbidity and mortality.

STEINHOFF, M C et al

Fingers or spoons to make oral rehydration solution?

Transactions of the Royal Society of Tropical Medicine and Hygiene (1985), Vol.79(3), p366-368

The accuracy and variability of the composition of oral rehydration solution (ORS) prepared by village health workers using (i) a finger measurement technique and (ii) a special ORS measuring spoon were compared. The sodium and sucrose concentrations were measured in 130 ORSs prepared by each technique. All the spoon-measured ORSs had acceptable levels of sodium and sucrose, compared with 93% of the finger-measured ORSs. Only 2.3% of finger-measured ORSs had hypertonic sodium levels. The variability of sodium and sucrose levels was significantly greater with the finger measurement technique. This comparison should assist programme managers to decide which technique to adopt. Both techniques require careful instruction to ensure accuracy.

### 5.3 SALMONELLOSES

BENNETT, M K et al

Jejunal mucosal morphology in healthy north Indian subjects

Journal of Clinical Pathology (1985), Vol.38(4), p368-371

Morphometric measurements have been performed on small intestinal biopsy specimens obtained from 18 healthy adult Indian volunteers. The measurements were made using a computer aided measuring system, and results were similar to those previously reported for an adult Caucasian population.

MONTGOMERY, R D & CHESNER, I M

Post-infective malabsorption in the temperate zone

Transactions of the Royal Society of Tropical Medicine and Hygiene (1985), vol.79(3), p322-327

A series of 37 adults normally resident in Britain have been investigated for persistent bowel symptoms following acute enteritis, 26 had intestinal malabsorption, of whom 12 had been travelling in the Mediterranean area, whereas 10 developed their illness at home. Mild jejunal mucosal abnormalities were found

in cases with and without malabsorption, and the intraepithelial lymphocyte count correlated more closely with the degree of malabsorption than did the histological grading. Over 80% of severe cases were folate deficient. Enterobacteria were cultured from the jejunal fluid in 30% of cases. Our observations confirm that post-infective malabsorption occurs sporadically in adults in the temperate zone and is occasionally severe. The condition involves small bowel contamination with enterobacteria, and it differs from acute tropical sprue only in its greater tendency to spontaneous recovery.

## 6 DISEASES CAUSED BY FUNGI

### 6.1 MYCETOMA

JOSHI, K R et al

Mycetoma caused by *Aspergillus nidulans* in India

Journal of Tropical Medicine and Hygiene (1985), Vol.88(1), p41-44

The first case of mycetoma caused by *Aspergillus nidulans* has been described from India in a young farmer of Jaisalmer situated in the Thar desert of Western Rajasthan, India. The diagnosis was confirmed by histopathological and mycological studies.

## 7. NUTRITIONAL DISEASES

CAMPBELL, J L et al

The portable Nabarro weight-height anthropometric nutrition assessment chart. A field trial in three countries in Africa

Transactions of the Royal Society of Tropical Medicine and Hygiene (1985), Vol.79(3), p409-411

A cluster sampling technique and a portable weight-for-height measuring chart were used to conduct nutrition surveys on children between 12 and 60 months of age in rural communities in Tanzania, Zambia and Zaire. Wasting was uncommon. Only four (0.6%) of 644 children who were weighed and measured had a weight-for-height of less than 80% of the standard. The new chart classified all of these as wasted, along with five others whose weight-for-heights were close to 80% (80.2 to 83.3%). The portable weight-for-height chart works well, and the observer error was small. Compared with calculations from tables it did not fail to identify any of the significantly wasted children and gave five false positives, all in borderline cases. Simple modifications would make this chart easier to use.

Prevention of rickets in Asian children: assessment of the Glasgow campaign

British Medical Journal, 27 July 1985, p239-242

In March 1979 the Greater Glasgow Health Board launched a campaign to reduce the high prevalence of rickets in Asian children in the city. A precampaign survey had shown that voluntary low dose vitamin D supplementation would reduce the prevalence of rickets in Asian children. A survey carried out two and three years after the launch of the official campaign also showed a reduction in the prevalence of rickets in children taking low dose supplements equivalent to about 2.5 µg (100 IU) vitamin D daily. There was a considerable reduction in the total prevalence of rickets in this survey compared with the precampaign survey. Hospital discharges of Asian children with rickets declined rapidly after the start of the campaign.

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## CONFERENCES AND COURSES

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### RECENT ADVANCES IN TROPICAL MEDICINE

8-14 June 1986, Liverpool

The course is designed to bring participants upto date on recent developments in the field of tropical medicine from the clinical as well as laboratory aspect.

The course will deal with recent advances and the present state of clinical practice, clinical epidemiology and therapeutics of the major tropical parasitic diseases. The relationship of laboratory science to clinical tropical practice with particular reference to immunodiagnosis and the pharmacokinetics of some of the drugs used in tropical medicine will be covered. One morning will be devoted to the salient problems of tropical paediatrics.

Each speaker as a recognised expert in his field will give a formal presentation of his or her topic. Seminar sessions will be held to allow maximal time for course members participation.

The following topics will be covered:

- malaria
- schistosomiasis
- onchocerciasis
- filariasis
- leishmaniasis
- leprosy
- trypanosomiasis
- the haemoglobinopathies
- zoonotic infections
- arbovirus infections
- amoebiasis
- viral haemorrhagic fevers
- tropical paediatrics
- nutrition

The course will be jointly directed by Professor HM Gilles and Dr Bell of the Liverpool School of Tropical Medicine.

#### Qualifications of members:

The course is designed for experienced physicians interested in new developments in tropical medicine both in the clinical and research fields and in various imported tropical diseases.

**Numbers:**

There are vacancies for 30 participants.

**Fee:**

£495 Residential, £325 non-residential.

**Venue and accommodation:**

The course sessions will take place at the Liverpool School of Tropical Medicine. Residential course members will be accommodated at a nearby hotel.

**Applications:**

Applicants are advised to apply before 14 February 1986.

Application forms may be obtained from the:

Regional Education Adviser  
British Deputy High Commission  
British Council Division  
737 Anna Salai  
MADRAS 600 002

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your nearest  
British Council Division

# ELBS

## NEW BOOKS SCHEDULED FOR PUBLICATION IN 1985 ON TROPICAL MEDICINE

### MEDICINE

District Health Care: Challenges for Planning, Organization and Evaluation in Developing Countries

R. Amonoo-Lartson

G.J. Borahim

H.J. Lovel

J.P. Ranken

Now that community-based health care is viewed by governments as the only feasible pattern for the effective delivery of health

services, district health care programmes are being established in many developing countries. This handbook is designed to give practical advice and support to district medical officers and district health teams throughout the world in planning, organizing, managing and evaluating health services for the district. The authors have brought together their diverse experience or work in the development of primary health care and in teaching mother and child health in a wide range of countries, including Ghana, Tanzania, India, Thailand and Lesotho. District Health Care will be an invaluable aid to all medical, health and nursing personnel involved in the planning, establishment and running of district health services.

Contents: The need for management in district health care. Finding out about health needs in the district. Making a health plan for the district. Building the health organization in the district. Practical management: putting plans into action. Getting feedback: monitoring and evaluation. Future prospects: challenges for change. Index

Macmillan 1984

HBBS £1.75

### Essential Malariaology

Leonard Jan Bruce-Chwatt

Some 1,600 million people throughout the world are still exposed to considerable risk of malaria infection. To meet the challenge of this disease, research and intensive training of medical and health personnel are essential. It is for the new generation of malariaologists and sanitarians that this second edition of Essential Malariaology has been prepared. In addition to providing the scientific background to understanding the parasitology, entomology, epidemiology and immunology of malaria, it stresses the latest practical methods of prevention, diagnosis, treatment and control of the disease. It will serve both as a training manual and as a reference work.

'...a well-balanced, authoritative blend of academic and applied malariaology. Essential Malariaology is written in clear, unimpaired language, bearing the unmistakable stamp of the author's broad field and administrative experience.'

American Journal of Tropical Medicine and Hygiene

Contents: Historical outline. The malaria parasites. Clinical course of malaria. Pathology of human malaria. Immunology of human malaria. Diagnostic methods in malaria. The anophelid vector. Epidemiology of malaria. Chemotherapy and chemoprophylaxis. Rationale and technique of malaria control. Pros and malaria eradication to malaria control: the past, the present and

## Medical Laboratory Manual for Tropical Countries volumes 1 and 2

Monica Cheesbrough

The laboratory is making an increasing contribution to curative and preventive health care in the developing world. Efforts to improve primary health care have produced a demand for basic laboratory facilities, which in turn has encouraged growth of existing services. Thus more and more hospital and health centre workers require training and guidance in medical laboratory procedures. It is for them that Monica Cheesbrough has written Medical Laboratory Manual for Tropical Countries, a practical and accessible work covering all aspects of the subject.

Volume 1 contains sections on anatomy and physiology, medical parasitology and clinical chemistry, as well as providing an introduction to the medical laboratory.

Volume 2 is devoted to microbiology, reflecting the importance of microbial diseases in developing countries, especially infectious diarrhoeal diseases, mycobacterial infections, meningitis, gonorrhoea and syphilis.

**Volume 1** **SECTION 1 INTRODUCTION TO THE LABORATORY:** The Contents: Laboratory service. Safety in the laboratory. Laboratory equipment. Microscopy. The health centre laboratory. **SECTION 2 ANATOMY AND PHYSIOLOGY:** Organization and framework of the human body. The respiratory and circulatory systems. The urinary system. The digestive system and metabolism of food. The nervous system and endocrine system. The reproductive system. **SECTION 3 MEDICAL PARASITOLOGY:** Introduction to medical parasitology. Identification of parasites. Intestinal and tissue protozoa. Malaria parasites. The trypanosomes. The leishmanial parasites. The tape-worms. Liver, intestinal and lung flukes. The schistosomes. Intestinal nematodes. Filarial worms and other tissue nematodes. Insects and arachnids of medical importance. **SECTION 4 CLINICAL CHEMISTRY:** Introduction to clinical chemistry. Filter absorption spectrometry, absorption spectrometry, and flame emission spectrometry. Planning a clinical chemistry laboratory. SI units, quality control, enzyme analysis, reference ranges in clinical chemistry. Tests in renal function. Function and measurement of electrolytes. Tests to investigate liver and gastrointestinal disorders. **Appendix 1:** Preparation of reagents. **Appendix 2:** addresses of manufacturers. **Appendix 3:** useful tables, Index

*Tropical Health Technology/Butterworth 1984*  
ELBS £2.95 approx.

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**Appendix 1:** preparation of reagents. **Appendix 2:** addresses of manufacturers and other useful addresses. Index

*Tropical Health Technology/Butterworth 2nd edition 1985*  
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## Tropical Gastroenterology

G.C. Cook

Gastroenterological problems form a substantial part of the subject long known as 'tropical medicine'. Although there are numerous texts covering tropical medicine and also gastroenterology and liver disease, this is probably the first to amalgamate the two successfully. It emphasizes those areas in which gastroenterology in the tropics differs from that in temperate countries, and discusses in detail the many important advances that have led to improved management of such diseases as cholera, tropical sprue, pigbel disease, cirrhosis and hepatoma. Written primarily for physicians and clinical students in the tropics, the book will also be useful to doctors in temperate countries who now see an increasing number of patients with gastroenterological diseases acquired in the tropics.

**Contents:** SECTION 1 UPPER GASTROINTESTINAL TRACT: The mouth, jaw, and salivary glands. The pharynx. The oesophagus. The stomach and duodenum. SECTION 2 THE LIVER AND BILIARY SYSTEM: The tropical liver: effect of chronic intestinal and reticuloendothelial infections. Hepatic abnormalities associated with systemic bacterial infection. Acute hepatic injury of viral, bacterial, and parasitic origin. Chronic hepatic injury (excluding alcoholic liver disease). Hepatocellular carcinoma (HCC) (hepatoma) and other. Schistosomal involvement of the liver. The portal venous system and portal hypertension (PH) in the tropics. Space-occupying hepatic lesions: amoebic and pyogenic abscess, and hydatid disease. Effect of undernutrition and alcohol on the liver. Diseases of the gall-bladder and biliary system. SECTION 3 THE PANCREAS: The pancreas in the tropics. SECTION 4 THE SPLEEN: The tropical splenomegaly syndrome (TSS) and other splenic diseases in the tropics. SECTION 5 THE SMALL INTESTINE: Acute bacterial and viral infections of the small intestine. Cholera. Small-intestinal parasites, excluding those which are associated with malabsorption. Malabsorption in the tropics. Primary and secondary hypolactasia (lactase-deficiency). Salmonellosis (typhoid fever). Chronic infections, tumours, and trauma involving the small intestine and peritoneum. SECTION 6 THE LARGE INTESTINE: Shigellosis (bacillary dysentery). Intestinal amoebiasis. Intestinal schistosomiasis. Other conditions involving the large intestine in the tropics. Antibiotic-associated colitis. Large-intestinal diseases which are uncommon in the Third World. Diseases involving the anal region. Index

Oxford University Press 1980  
ELBS £7.95

#### Paediatrics in the Tropics: Current Review

Edited by  
R.G. Hendrickse

This book derives from a short intensive course for paediatricians from tropical developing countries held at the Liverpool School of Tropical Medicine. It contains reviews by internationally recognized experts of a wide range of topics important to paediatric practice in the tropics and subtropics. The first part of the text deals with the rapidly expanding field of neonatology. There then follow sections on general paediatrics and on infections and parasitic diseases. The fourth and final part is devoted to delivery of child health care in tropical countries. Doctors working in the tropics and subtropics will find this book useful in revising and upgrading their knowledge of paediatrics in the light of scientific advances and new approaches to medical care that have occurred in recent years.

'Many excellent, relevant, up-to-date reviews are there, particularly in the infectious diseases section where all chapters are informative.' British Medical Journal

**Contents:** PART 1 NEONATOLOGY: Neonatology in developing countries: an overview with special reference to neonatal tetanus, neonatal jaundice, low birth weight and birth for dates. Respiratory distress syndrome. Neonatal nutrition. Drug therapy in the newborn. Pre-natal infections. PART 2 GENERAL PEDIATRICS Infant feeding practices and the development of malnutrition in rural Gambia. Growth and development study. The investigation and management of short stature. Vitamin D and rickets. Acute diarrhoeal diseases. Immunological aspects of infant feeding. Milk protein allergy. Childhood anaemias in the tropics. Thalassemia. Renal disease in childhood in Africa. Childhood diabetes mellitus in the tropics. The management of acute lymphoblastic leukaemia in childhood. Venomous bites and stings of children in the tropics. PART 3 INFECTIOUS AND PARASITIC DISEASE: Continued problem of malaria in the tropics. The treatment of tuberculosis in childhood: current concepts and practice. Leprosy in childhood: an overview of the current world scene. Dengue haemorrhagic fever. Yellow fever, Lassa fever and Ebola haemorrhagic fever. Zoonoses. Viruses and neoplasms. Intestinal parasites and host susceptibility in children. Immuno-diagnosis of tropical infections: clinical and epidemiological uses. PART 4 CHILD HEALTH SERVICES: Immunization in childhood. New concepts in health services: function of health auxiliaries in paediatric services. Provision of child health care. Index

Oxford University Press 1981  
ELBS £4.25 approx.

#### Handbook of Leprosy

M.H. Jopling

In the third edition of this well-known textbook, the author has again provided a concise, authoritative account of the diagnosis, classification and management of leprosy, a disease of exceptional interest and worldwide importance. The text has been brought up to date and a new chapter on differential diagnosis is included. In addition, the glossary has been further extended, and the important subject of multidrug therapy is fully described. The book should be of particular interest to doctors, paramedical workers and medical students in countries where leprosy is endemic.

'Dr Jopling has again created a superb handbook on leprosy.'  
International Journal of Leprosy

**Contents:** Definition, epidemiology and world distribution. The disease. The lepromin test. Diagnostic tests. General principles of immunology and their application to the leprosy patient.

Leprosy reactions (reactional states). Management. Prevention.  
Differential diagnosis. Glossary. Index. Tables 1-8

Heinemann Medical 3rd edition 1984  
ELBS £3.75

#### A Short Textbook of Preventive Medicine for the Tropics

Adetokunbo O. Lucas  
Herbert M. Gilles

Preventive medicine holds the key to combating poor nutrition and disease which are so widespread in the tropics. All doctors who intend to work in tropical countries must therefore understand the relationship between health and environmental conditions, including human behaviour and other social factors. This book, written by two leading authorities, is intended both as a basic text for students of tropical medicine and as a source of reference for practising members of the health professions. It has been extensively revised for this second edition to incorporate important advances in such areas as nutrition, primary care and chemotherapy. It remains a practical, concise and straightforward guide to how preventive medicine can contribute to the health of people in the tropics.

'The authors have made a splendid attempt to fill a real need.'  
Tropical Diseases Bulletin

**Contents:** The tropical environment. Health statistics. Epidemiology. Infections through the gastrointestinal tract. Infections through skin and mucous membranes. Arthropod-borne infections. Airborne infections. Nutritional disorders. The organization of health services. Family health. Environmental health. Health education. Other aspects of public health. Index

Hodder & Stoughton 2nd edition 1984  
ELBS £3.50

#### Principles of Medicine in Africa

Edited by  
E.H.O. Parry

The second edition of this textbook, whose contributors have worked in ten different African countries, sets out the universal principles of medicine in the particular context of Africa and provides full coverage of clinical disorders commonly met. It is intended as a companion for medical students, postgraduates and practising doctors in Africa. The background to disease is strongly emphasized - particularly climate, geographical variation, culture, urbanization and nutrition. The immune response to infection and the symptoms and signs in all the major organ systems, with the differences from temperate climates in the pattern of disease, are described in detail. The management of major emergencies and the setting up of an essential laboratory are also fully covered in the final chapters.

'...to the undergraduate student in Africa the book must be essential reading.'  
British Medical Journal

**Contents:** Climate and disease. People and disease. Food, agriculture and disease. Animals and disease. The immune response to infection. Transmission of infection. Clinical features of infection. Treatment of infection. The approach to treatment. Communicable diseases. Disturbed patient. Nervous system. Disturbances of water, electrolyte, and hydrogen ion balance. The skin. Cardiovascular disease in Africa. The blood. The lung. The gut. The liver. Splenomegaly. The kidney. Diseases of joints, connective tissue, bone and muscle. Endocrine and metabolic disease. Cancer. The pregnant patient. Emergencies. The essential laboratory. Index

Oxford University Press 2nd edition 1984  
ELBS £15.00

**A Colour Atlas of Tropical Medicine and Parasitology**

**W. Peters**  
**Herbert M. Gilles**

This atlas fills a long-standing gap in the teaching and reference material available to medical students and practitioners. Completely up to date, it contains photographic material covering parasites as seen in man, their life cycles, clinical aspects and, in some cases, ecology. Also included are clinical photographs of non-parasitic conditions and their causative organisms. Distribution maps show the geographical extent of the common tropical diseases, and tables give the zoological classification, prevalence and clinical correlations of many of the parasites illustrated. As a ready reference for medical and paramedical workers in the tropics, the atlas will be of immense value, providing an accurate diagnostic guide to a wide range of conditions. It will also be useful to research workers and to students of biology and veterinary medicine, in which parasitic diseases play a prominent role.

**Contents:** Introduction. Part 1 Arthropod-borne infections. Part 2 Soil-mediated helminthiasis. Part 3 Snail-mediated helminthiasis. Part 4 Infections acquired through the gastrointestinal tract. Part 5 Infections acquired through the skin and mucous membranes. Part 6 Airborne infections. Part 7 Nutritional disorders. Part 8 Miscellaneous disorders. Life cycles. List of tables. Bibliography. Index

**Wolfe Medical 2nd edition 1981**  
**RLHS £9.00**

**A Textbook for Midwives in the Tropics**

**O.A. Ojo**  
**Enang Bassey Briggs**

This is a practical textbook written specifically for midwives either training or working in the tropics. It deals with obstetric conditions peculiar to the tropical zone, emphasizing important complications of pregnancy and labour. It also furnishes the midwife with an understanding of the environment in which she has to work. The book is well illustrated and written in clear, simple English. For this second edition, the text has been thoroughly revised to cover recent advances in midwifery. Many topics have been expanded, including preterm labour, intra-uterine growth retardation, risk approach in obstetrics, respiratory distress syndrome of the newborn and family planning. Others, for example pregnancy tests, have been updated. Material has been added on chronic nephritis and thyroid disease.

'The diagrams are excellent...The chapters on the conditions that have special relevance to the tropics, e.g. malaria, anaemia, jaundice, eclampsia, obstructed labour and ruptured uterus, are very good and full of valuable information.'

Tropical Diseases Bulletin

**Contents:** Section 1 Introduction. Section 2 Special anatomy. Section 3 Special physiology and normal pregnancy. Section 4 Antenatal care. Section 5 Medical disorders in pregnancy. Section 6 Toxaemias in pregnancy. Section 7 Normal labour. Section 8 Abnormal labour. Section 9 The puerperium. Section 10 The neonate. Section 11 Public health. Index

**Edward Arnold 2nd edition 1982**  
**RLHS £3.25**

## Manual of Practical Dermatology

John W.S. Pettit

This manual is designed for doctors who have had little or no training in dermatology and who find themselves working in areas where there are limited facilities. It will help such doctors to recognize skin diseases and to treat them successfully. The treatments recommended are practical and relatively inexpensive. After a brief introduction to the skin and an outline of dermatological therapy, the book is divided into three main sections covering common skin diseases, less common skin problems and regional diagnosis. The text is illustrated with over one hundred photographs, some of which are in full colour. Many of the illustrations are of African and Asian patients, making this an invaluable reference work for all doctors working in these areas.

...a lively account of common skin diseases seen in the tropics and their management... This book will be of great help and should be read by non-dermatologists and dermatologists alike.

The Journal of Tropical Medicine and Hygiene

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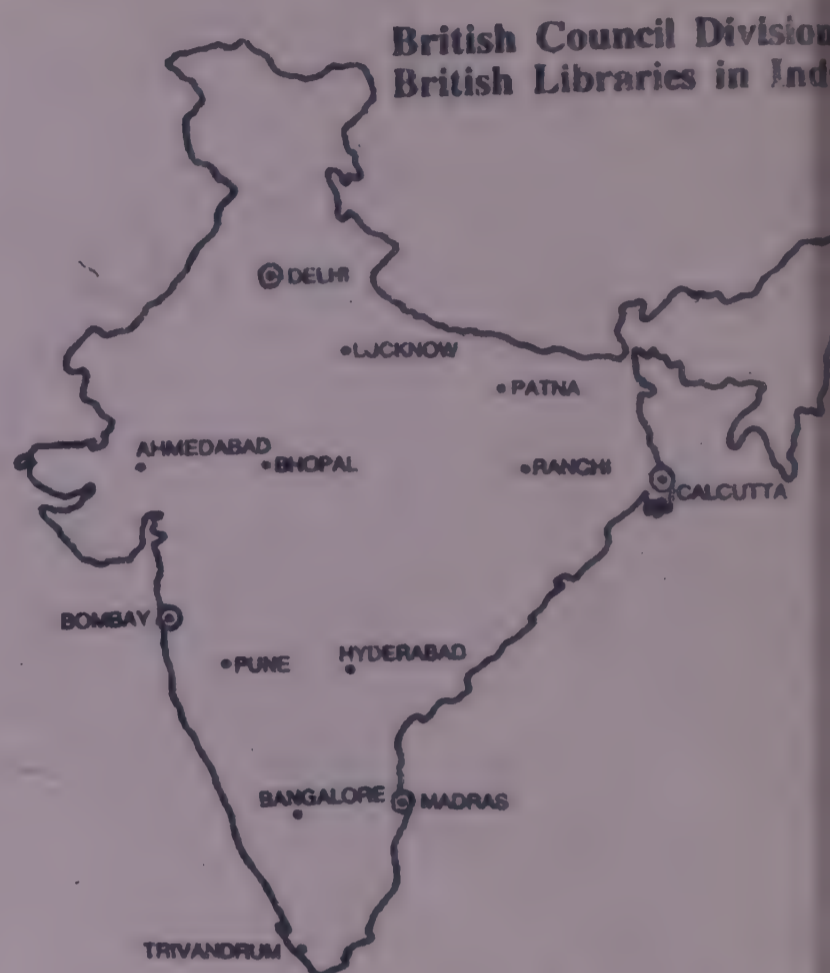
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